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BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT FOR STUDY AREA 51 NTC ORLANDO FL

1/1/1997

ABB ENVIRONMENTAL

BASE REALIGNMENT AND CLOSURE ENVIRONMENTAL SITE SCREENING REPORT

STUDY AREA 51
FORMER ELECTRICAL SUBSTATION

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

UNIT IDENTIFICATION CODE: N65928
CONTRACT NO. N62467-89-D-0317/107

JANUARY 1997

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29419-9010

BASE REALIGNMENT AND CLOSURE
ENVIRONMENTAL SITE SCREENING REPORT

STUDY AREA 51
FORMER ELECTRICAL SUBSTATION

NAVAL TRAINING CENTER
ORLANDO, FLORIDA

Unit Identification Code: N65928

Contract No.: N62467-89-D-0317/107

Prepared by:

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Barbara Nwokike, Code 1873, Engineer-in-Charge

January 1997

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/107 are complete and accurate and comply with all requirements of this contract.

DATE: January 14, 1997

NAME AND TITLE OF CERTIFYING OFFICIAL: John Kaiser
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Richard Allen
Project Technical Lead

(DFAR 252.227-7036)

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Naval Training Center
Orlando, Florida

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Naval Training Center
Orlando, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
CLP	Contract Laboratory program
DQO	data quality objective
FDEP	Florida Department of Environmental Protection
PCB	polychlorinated biphenyl
QC	quality control
RBC	risk-based concentration
SA	study area
SCG	soil cleanup goals
TAL	target analyte list
TCL	target compound list
TSS	total suspended solids
USEPA	U.S. Environmental Protection Agency

1.0 STUDY AREA (SA) 51, FORMER BUILDING 7159, ELECTRICAL SUBSTATION

This report contains information gathered as a result of site screening activities conducted at SA 51. Site screening investigations began on July 18, 1996, and were completed on August 7, 1996. Proposed field activities were presented in the Site Screening Plan, Air Force Sites, Addendum 2 (ABB Environmental Services, Inc. [ABB-ES], 1995).

1.1 SA 51, BACKGROUND AND CONDITIONS. The focus of the site screening investigation at SA 51 was the area formerly occupied by Building 7159, an electrical substation. Previous research on the history and use of the area have indicated the potential for release of polychlorinated biphenyls (PCBs) into environmental media.

Study Area 51 is located north of Binnacle Way and west of Tradeport Drive on the eastern side of the McCoy Annex of the Naval Training Center in Orlando, Florida (Figures 1 and 2). Currently, the site is a grass-covered field with a gravel-covered rectangular area approximately 30 feet wide by 40 feet long where Building 7159 was demolished. After the removal of Building 7159, transformers were installed on concrete pads in the gravel-covered area. Currently, there is no electrical equipment in the gravel-covered area.

1.2 SA 51, INVESTIGATION SUMMARY. The objective of the site screening activities was to evaluate potential PCB contamination that may remain at the former substation (Building 7159). To accomplish this objective, the following field activities were completed:

- onsite soil screening
- surface soil sampling
- subsurface soil sampling
- permanent monitoring well installation
- groundwater sampling

Soil and groundwater samples were collected from locations within, or estimated to be downgradient of, potentially affected areas and analyzed for various analytical parameters.

1.2.1 Onsite Soil Screening During July 1996, the field team collected surface and subsurface soil samples at 12 locations (Figure 3). The soil samples were field screened for total PCBs with immunoassay field kits using U.S. Environmental Protection Agency (USEPA) Method 4020. Immunoassay analysis is conducted in accordance with USEPA Level II data quality objectives (DQOs). Selected samples, along with appropriate quality control (QC) samples, were sent to an offsite laboratory for confirmatory PCB analysis.

Surface soil sampling occurred at 11 locations in the gravel area and 1 background location in the grassy area northwest of the former substation (sample numbers 51S01A01, 51S02A01, and 51S00301 through 51S01201). The gravel cover at each of the locations was from 1 to 2.5 feet thick. After the gravel was removed to expose the soil at each sampling location, surface soil samples were collected

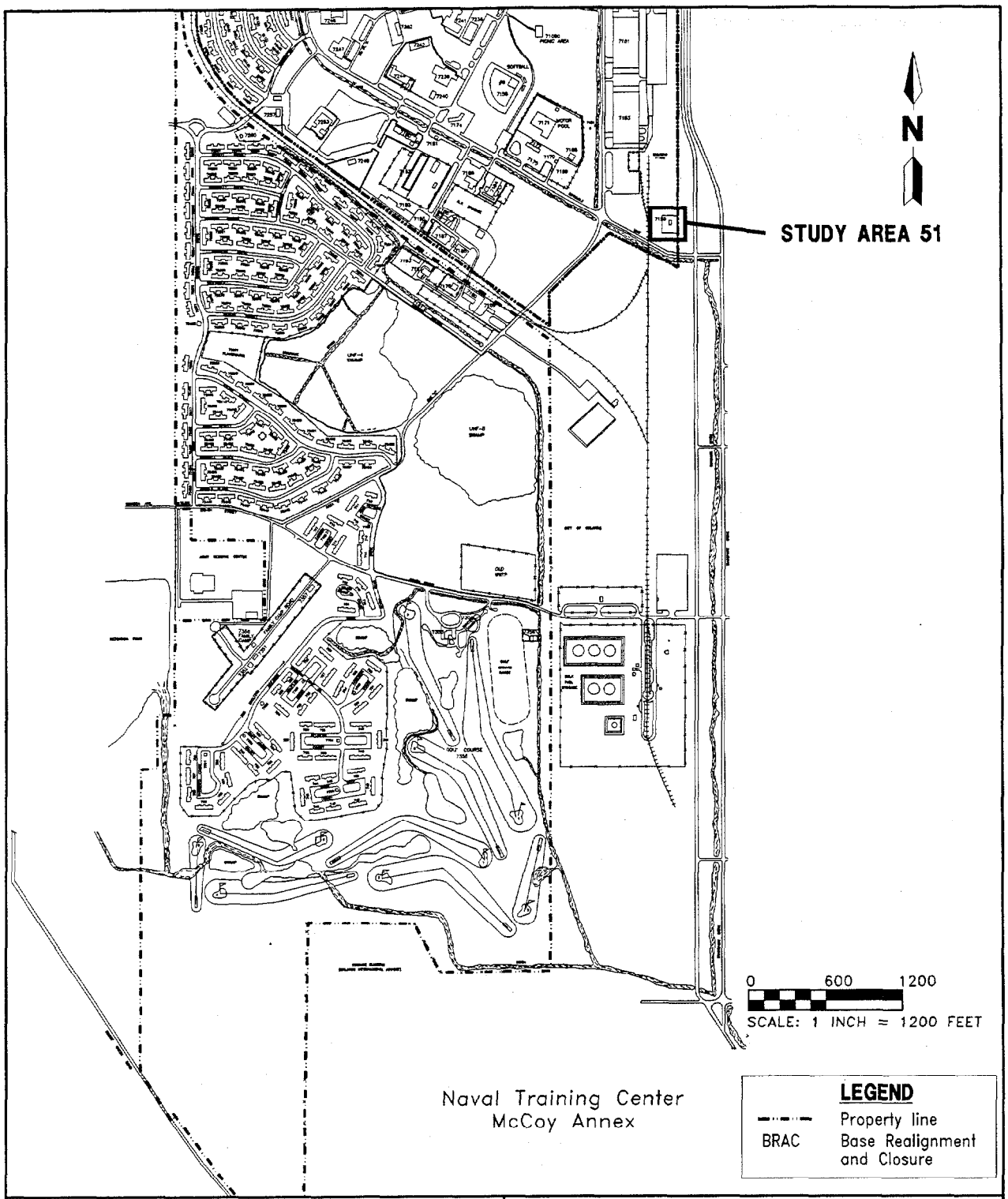

FIGURE 1
STUDY AREA LOCATION

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TECHNICAL MEMORANDUM
BRAC ENVIRONMENTAL
SITE SCREENING INVESTIGATION
STUDY AREA 51
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

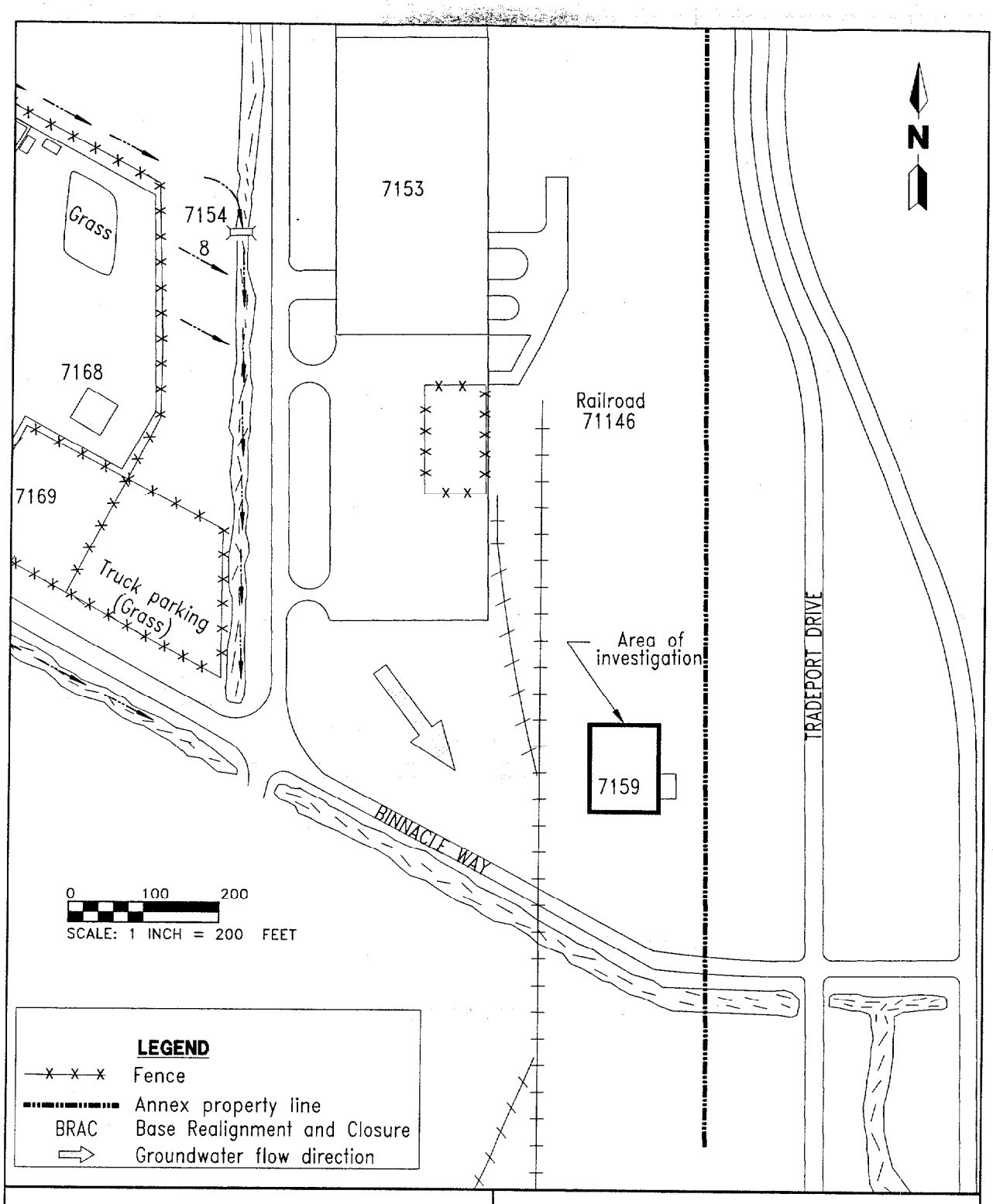

FIGURE 2
SITE LOCATION
FORMER ELECTRICAL SUBSTATION
BUILDING 7159
AIR FORCE SITES

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TECHNICAL MEMORANDUM
BRAC ENVIRONMENTAL
SITE SCREENING INVESTIGATION
STUDY AREA 51
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

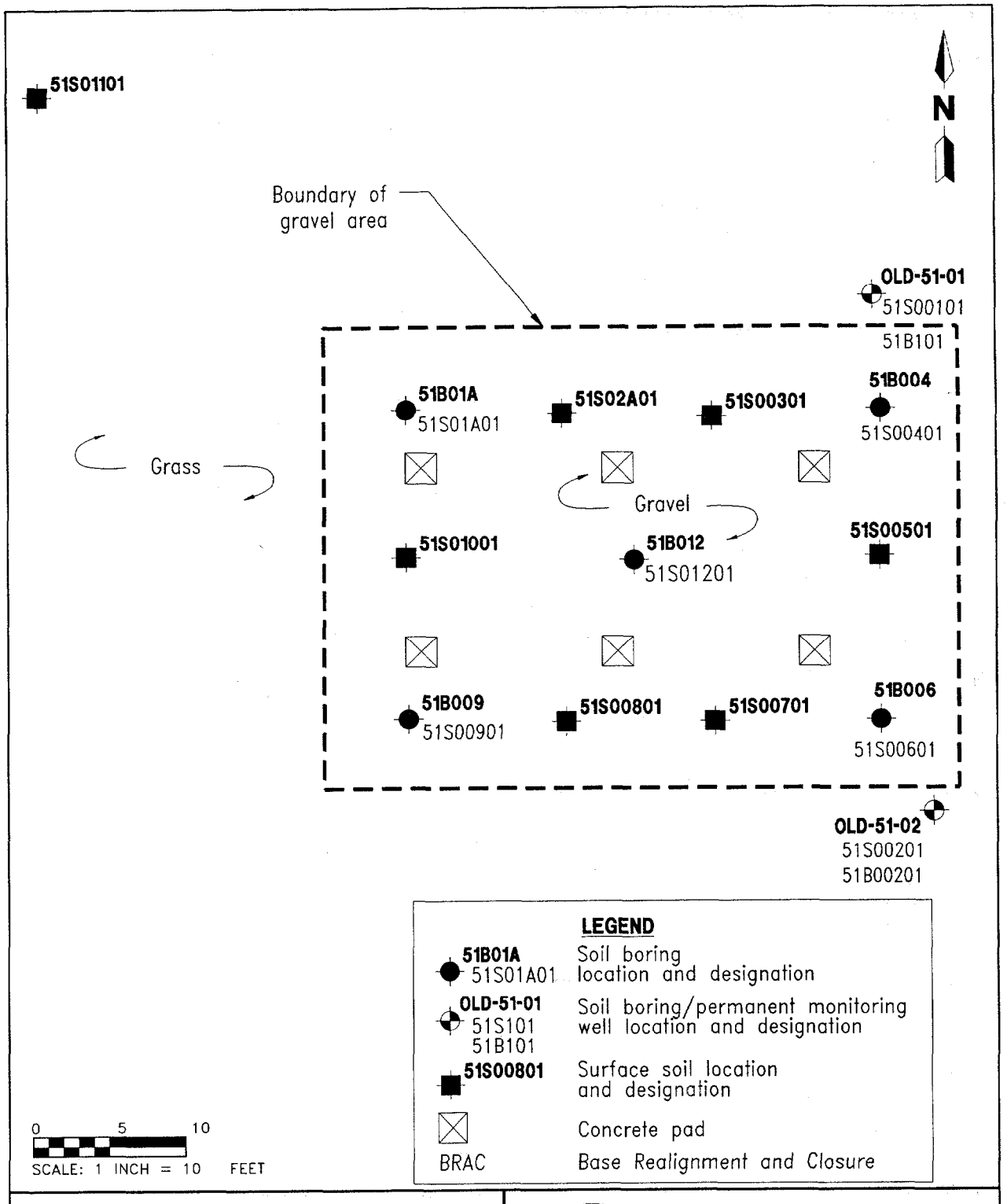

FIGURE 3
SAMPLE LOCATIONS
FORMER ELECTRICAL SUBSTATION
MCCOY ANNEX

TECHNICAL MEMORANDUM
BRAC ENVIRONMENTAL
SITE SCREENING INVESTIGATION
STUDY AREA 51
NAVAL TRAINING CENTER
ORLANDO, FLORIDA

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with hand augers. Four surface soil samples (51S01A01, 51S00401, 51S00601, 51S00901) were sent to an offsite laboratory for confirmatory Contract Laboratory program (CLP) target compound list (TCL) PCB analysis.

At five of the surface soil locations, subsurface soil samples were collected at 1-foot intervals from 1 to 5 feet below the soil surface. Twenty subsurface soil samples were collected from these five sample locations (51B01A01 through 51B01A04, 51B00401 through 51B00404, 51B00601 through 51B00604, 51B00901 through 51B00904). Four subsurface soil samples (51B01A03, 51B00401, 51B00604, 51B00902) were sent to an offsite laboratory for confirmatory CLP TCL PCB analysis.

1.2.2 Surface Soil Sampling Two surface soil samples were collected adjacent to the gravel area. Sample 51S00101 was collected near the northeast corner of the gravel area. Sample 51S00201 was collected at the southeast corner of the gravel area. No flame ionization detector responses were noted at any of the surface soil sample locations. Appropriate QC samples were collected and submitted for laboratory analysis. The two samples were submitted to an offsite laboratory for analysis of TCL semivolatile organic compounds and PCBs, and target analyte list (TAL) metals.

1.2.3 Subsurface Soil Sampling Two soil borings were completed at SA 51. Borings were located downgradient of the area of concern, based on the presumed groundwater flow direction to the east or south. The presence of buried underground utilities prevented drilling to the east of the gravel area. One subsurface soil sample was collected from each boring from the interval directly above the water table (51B00101 and 51B00201). No flame ionization detector responses were noted during soil boring completion activities. The samples were submitted to an offsite laboratory for analysis of TCL semivolatile organic compounds and PCBs, and TAL metals.

1.2.4 Monitoring Well Installation and Groundwater Sampling A permanent monitoring well was installed in each soil boring at the perimeter of the gravel area. The monitoring wells were located to intercept easterly or southerly groundwater flow. Following development and purging of each well, a groundwater sample was collected from each location (51G00101 and 51G00201) using the low-flow method. Appropriate QC samples were collected and submitted for laboratory analysis. Soil and groundwater samples submitted for laboratory analysis were analyzed in accordance with USEPA Level IV DQOs. Groundwater samples collected from the SA were also analyzed for total suspended solids (TSS) in accordance with USEPA Level III DQOs.

The groundwater samples sent to an offsite laboratory were analyzed for TCL semivolatile organic compounds and PCBs, TAL metals, and TSS.

1.3 SA 51, RESULTS. The PCB soil screening results are presented as Attachment A, which includes A-1, Summary of Field PCB Screening and A-2, Summary of Surface Soil Analytical Results, PCB Confirmation Samples. The results of the surface soil, subsurface soil, and groundwater analyses are presented as Attachment B, which includes B-1, Summary of Positive Detections in Analytical Results in Surface Soil; B-2, Summary of Positive Detections in Analytical Results in Subsurface Soil; and B-3 Summary of Positive Detections in Groundwater Analytical Results. Attachment C contains all of the analytical findings, including C-1,

Summary of Surface Soil Analytical Results; C-2, Summary of Subsurface Analytical Results; and C-3, Summary of Groundwater Analytical Results. Table 1 presents a summary of the sampling and analysis program for SA 51.

Table 1
Summary of Sampling and Analysis Program

Base Realignment and Closure
Site Screening Investigation
Study Area 51, Former Electrical Substation
Naval Training Center
Orlando, Florida

Matrix	Onsite Screening[1]	Confirmatory Sample[2]	Offsite Analysis[3]
Surface Soil	12	4	2
Subsurface Soil	20	4	2
Groundwater	0	0	2

[1] Analyzed for polychlorinated biphenyls (PCBs) by immunoassay.
[2] Analyzed for target compound list (TCL) PCBs.
[3] Analyzed for TCL PCBs and semivolatile organic compounds, target analyte list metals, and total suspended solids (groundwater only).

The surface and subsurface soil analytical results were evaluated by comparing their respective concentrations with (1) their respective site-specific (McCoy Annex) soil background screening concentrations; (2) Florida Department of Environmental Protection's (FDEP's) soil cleanup goals for residential soils, and (3) USEPA Region III risk-based concentrations (RBCs). Groundwater analytical results were compared to basewide groundwater background screening concentrations, FDEP's groundwater guideline values, Federal maximum contaminant levels, and USEPA Region III RBCs. The significant findings from this evaluation follow.

1.3.1 Soil Screening PCBs were not detected at concentrations exceeding screening criteria in any soil screening samples or in confirmatory samples. Leachability-based soil cleanup goals (SCG) values do not apply, as no organic compounds were present in groundwater above FDEP groundwater guidance concentrations (see below).

1.3.2 Surface Soil Compounds were not detected at concentrations exceeding screening criteria at any surface soil sample location. Leachability-based SCG values do not apply, as no organic compounds were present in groundwater above FDEP groundwater guidance concentrations (see below).

1.3.3 Subsurface Soil Compounds were not detected at concentrations exceeding screening criteria at any subsurface soil sample location. Leachability-based SCG values do not apply, as no organic compounds were present in groundwater above FDEP groundwater guidance concentrations (see below).

1.3.4 Groundwater Compounds were not detected at concentrations exceeding screening criteria at either of the two groundwater sample locations.

1.4 CONCLUSIONS AND RECOMMENDATIONS Surface soil, subsurface soil, and groundwater samples collected at SA 51 did not contain concentrations of analytes greater than their respective screening criteria.

Based on information available and evaluation of site screening data for this study area, ABB-ES recommends the following:

- A classification 2/Blue for SA 51, because evidence indicates that only the storage of hazardous substances or petroleum products, but that no release, disposal, or migration from adjacent areas has occurred.

SA 51 is suitable for transfer with no further requirement for evaluation. The undersigned members of the Orlando Partnering Team concur with the findings and recommendations of the site screening program for SA 51.

STUDY AREA 51

U.S. Environmental Protection Agency, Region IV	Date 1/23/97
Florida Department of Environmental Protection	Date 1/23/97
U.S. Department of the Navy	Date 1/23/97

REFERENCE

ABB Environmental Services, Inc., 1995, Site Screening Plan, Former Air Force Sites, Addendum 2, Naval Training Center, Orlando, Florida: prepared for Southern Division, Naval Facilities Engineering Command, North Charleston, South Carolina, December.

ATTACHMENT A

SUMMARY OF POLYCHLORINATED BIPHENYLS FIELD SCREENING RESULTS

ATTACHMENT A-1

SUMMARY OF FIELD PCB SCREENING

Table A-1. Summary of Field PCB Screening
Study Area 51

Site Screening Report
Naval Training Center, Orlando
Orlando, FL

SAMPLE ID	SAMPLING DATE	DEPTH (FT BLS)	PCB CONCENTRATION (PPM)	CONFIRMATORY SAMPLING
51S01A01	7/19/96	0-1	less than 0.5	X
51B01A01	7/22/96	1-2	less than 0.5	
51B01A02	7/22/96	2-3	less than 0.5	
51B01A03	7/22/96	3-4	less than 0.5	X
51B01A04	7/22/96	4-5	less than 0.5	
51S02A01	7/19/96	0-1	less than 0.5	
51S00301	7/19/96	0-1	less than 0.5	
51S00401	7/19/96	0-1	less than 0.5	X
51B00401	7/22/96	1-2	less than 0.5	X
51B00402	7/22/96	2-3	less than 0.5	
51B00403	7/22/96	3-4	less than 0.5	
51B00404	7/22/96	4-5	less than 0.5	
51S00501	7/19/96	0-1	less than 0.5	
51S00601	7/19/96	0-1	less than 0.5	X
51S00601D	7/19/96	0-1	less than 0.5	
51B00601	7/22/96	1-2	less than 0.5	
51B00602	7/22/96	2-3	less than 0.5	
51B00603	7/22/96	3-4	less than 0.5	
51B00604	7/22/96	4-5	less than 0.5	X
51S00701	7/19/96	0-1	less than 0.5	
51S00801	7/19/96	0-1	less than 0.5	
51S00901	7/19/96	0-1	less than 0.5	X
51B00901	7/22/96	1-2	less than 0.5	
51B00902	7/22/96	2-3	less than 0.5	X
51B00903	7/22/96	3-4	less than 0.5	
51B00904	7/22/96	4-5	less than 0.5	
51S01001	7/19/96	0-1	less than 0.5	
51S01101	7/19/96	0-1	less than 0.5	
51S01201	7/23/96	0-1	less than 0.5	
51S01201D	7/23/96	0-1	less than 0.5	
51B01201	7/23/96	1-2	less than 0.5	
51B01202	7/23/96	2-3	less than 0.5	
51B01203	7/23/96	3-4	less than 0.5	
51B01204	7/23/96	4-5	less than 0.5	

ATTACHMENT A-2

SUMMARY OF SOIL ANALYTICAL RESULTS
PCB CONFIRMATION SAMPLES

Attachment A

A-2. Summary of Soil Analytical Results, PCB Confirmation Samples
Study Area 51

Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	51B01A03		51B01A03D		51B00401		51B00604		51B00902		51S01A01		51S00401		51S00601		51S00901	
Lab ID	MB448002		MB448003		MB448005		MB448007		MB448009		MB448001		MB448004		MB448006		MB448008	
Sampling Date	22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96	
Feet bls	3-4		3-4		1-2		4-5		2-3		0-1		0-1		0-1		0-1	
Polychlorinated biphenyls, ug/kg																		
Aroclor-1016	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1221	78	U	78	U	77	U	78	U	73	U	73	U	75	UJ	77	U	71	U
Aroclor-1232	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1242	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1248	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1254	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1260	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U

DRAFT

Attachment A

A-2. Summary of Soil Analytical Results, PCB Confirmation Samples
Study Area 51

Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	51B01A03		51B01A03D		51B00401		51B00604		51B00902		51S01A01		51S00401		51S00601		51S00901	
Lab ID	MB448002		MB448003		MB448005		MB448007		MB448009		MB448001		MB448004		MB448006		MB448008	
Sampling Date	22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96		22-Jul-96	
Polychlorinated biphenyls, ug/kg																		
Aroclor-1016	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1221	78	U	78	U	77	U	78	U	73	U	73	U	75	UJ	77	U	71	U
Aroclor-1232	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1242	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1248	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1254	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U
Aroclor-1260	38	U	38	U	38	U	38	U	36	U	36	U	37	UJ	38	U	35	U

ATTACHMENT B

SUMMARY OF POSITIVE DETECTIONS IN SOIL AND GROUNDWATER ANALYTICAL RESULTS

ATTACHMENT B-1

SUMMARY OF POSITIVE DETECTIONS IN SURFACE SOIL ANALYTICAL RESULTS

Attachment B

B-1. Summary of Positive Detections in Surface Soil Analytical Results, Study Area 51

Naval Training Center, Orlando
Orlando, FL

Identifier	Background Screening [1]		SCG [2]		RBC [3] for Residential Soil		RBC [3] for Industrial Soil		51S00101		51S00201	
Sampling Date									7-Aug-96		7-Aug-96	
Feet bls									0-1		0-1	
Semivolatile Organics, ug/kg												
bis(2-Ethylhexyl)phthalate			48,000		46,000	c	410,000	c	450			
Inorganics, mg/kg												
Aluminum	4,870		75,000		78,000	n	1,000,000	n	1770	J	1620	J
Arsenic	1.9		0.8		0.43 /23	c/n	3.8 /610	c/n			0.31	B
Beryllium	0.46		0.2		0.15	c	1.3	c	0.03	B	0.06	B
Calcium	33,568		ND		1,000,000		1,000,000		444	J	1850	J
Chromium	7.7		290		390	n	10,000	n	2.3	B	2.1	B
Copper	2.6		ND		3,100	n	82,000	n	3.1	B	2.7	B
Iron	843		ND		23,000	n	610,000	n	182		436	
Lead	21.3		500		400		400		3.5		4.1	
Magnesium	381		ND		460,468		460,468		29.4	J	87.7	J
Manganese	10.8		370		1800	n	47,000	n	2.4	J	4.6	J
Nickel			1,500		1,600	n	41,000	n	1.5	B		
Sodium			ND		1,000,000		1,000,000				48.8	B
Vanadium	4.9		490		550	n	14,000	n	0.58	B	0.64	B
Zinc	4.6		23,000		23,000	n	610,000	n	14.1	J	31.5	J

Attachment B

B-1. Summary of Positive Detections in Surface Soil Analytical Results, Study Area 51

Naval Training Center, Orlando
Orlando, FL

NOTES:

[1] The background screening value is twice the average of detected concentrations for inorganic analytes.

[2] SCG = Soil Cleanup Goals for Florida (Florida Department of Environmental Protection memorandum, September 29, 1995). Arsenic value is as revised in Applicability of Soil Cleanup Goals for Florida (FDEP memorandum, January 19, 1996). Values indicated are from a residential scenario.
Chromium values are for Chromium VI.

[3] RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available, value is Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355-4-12). For essential nutrients (calcium, magnesium, and sodium) screening values were derived based on recommended daily allowances (RDAs).

n = noncarcinogenic pathway
c = carcinogenic pathway
ND = Not determined.
bls = below land surface
mg/kg = milligrams per kilogram.
ug/kg = micrograms per kilogram.
OSWER = Office of Solid Waste and Emergency Response.
USEPA = U.S. Environmental Protection Agency.
B = Reported concentration is between the instrument detection limit (IDL) and Contract Required Detection Limit (CRDL).
J = Reported concentration is an estimated quantity.
All inorganics results expressed in milligrams per kilogram (mg/kg) soil dry weight; organics in micrograms per kilogram (ug/kg) soil dry weight.
Blank space indicates analyte/compound was not detected at the reporting limit.

ATTACHMENT B-2

SUMMARY OF POSITIVE DETECTIONS IN SUBSURFACE SOIL ANALYTICAL RESULTS

Attachment B

B-2. Summary of Positive Detections in Subsurface Soil Analytical Results, Study Area 51

Naval Training Center, Orlando
Orlando, FL

Identifier	Background Screening [1]		SCG [2]		RBC [3] for Residential Soil		RBC [3] for Industrial Soil		51B00101		51B00101D		51B00201	
Sampling Date									7-Aug-96		7-Aug-96		7-Aug-96	
Feet bls									4-5		4-5		4-5	
Volatile Organics, ug/kg														
bis(2-Ethylhexyl)phthalate			NA		46000	c	410000	c	130	J	110	J		
Inorganics, mg/kg														
Aluminum	11,130		NA		78,000	n	1,000,000	n	8250	J	7780	J	3970	J
Arsenic	2		NA		0.43 /23	c/n	3.8 /610	c/n					0.23	J
Barium	11.3		NA		5,500	n	140,000	n	10	B	11.4	B	10.4	B
Beryllium	0.18		NA		0.15	c	1.3	c	0.11	B	0.13	B	0.03	B
Calcium	321		NA		1,000,000		1,000,000		96.3	J	104	J	181	J
Chromium	11.3		NA		390	n	10,000	n	10.6		9.8		5.1	
Copper	2.8		NA		3,100	n	82,000	n	1.4	B	1.3	B	2	B
Iron	829		NA		23,000	n	610,000	n	255		264		164	
Lead	7		NA		400		400		13		13.8		9.7	
Magnesium	38.9		NA		460,468		460,468		24	J	23.9	J	41.9	J
Manganese	0.69		NA		1800	n	47,000	n	0.57	J	1.2	J	0.91	J
Mercury	0.12		NA		23	n	610	n	0.06	B	0.06	B		
Nickel	11.3		NA		1,600	n	41,000	n	3.8	B	1.8	B	2	B
Sodium			NA		1,000,000		1,000,000		23.7	B			36.9	B
Vanadium	5.9		NA		550	n	14,000	n	1.3	B	1.9	B	1.4	B
Zinc	0.66		NA		23,000	n	610,000	n	4	J	5.7	J	4	J

Attachment B.

B-2. Summary of Positive Detections in Subsurface Soil Analytical Results, Study Area 51

Naval Training Center, Orlando
Orlando, FL

NOTES:

[1] The background screening value is twice the average of detected concentrations for inorganic analytes.

[2] SCG = Soil Cleanup Goals for Florida (Florida Department of Environmental Protection memorandum, September 29, 1995).

[3] RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith. RBC for chromium is based on chromium VI. RBC for lead is not available, value is Interim Guidance on Establishing Soil Lead Cleanup Levels at Superfund Sites (OSWER directive 9355-4-12). For essential nutrients (calcium, magnesium,, and sodium) screening values were derived based on recommended daily allowances (RDAs).

n = noncarcinogenic pathway
c = carcinogenic pathway
bls = below land surface
mg/kg = milligrams per kilogram.
ug/kg = micrograms per kilogram.
OSWER = Office of Solid Waste and Emergency Response.
USEPA = U.S. Environmental Protection Agency.
B = Reported concentration is between the instrument detection limit (IDL) and Contract Required Detection Limit (CRDL).
J = Reported concentration is an estimated quantity.
NA = Not applicable
All inorganics results expressed in milligrams per kilogram (mg/kg) soil dry weight; organics in micrograms per kilogram (ug/kg) soil dry weight.
Blank space indicates analyte/compound was not detected at the reporting limit.

ATTACHMENT B-3

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER ANALYTICAL RESULTS

Attachment B

B-3. Summary of Positive Detections in Groundwater Analytical Results, Study Area 51

Naval Training Center, Orlando
Orlando, FL

Well ID								OLD-51-01		OLD-51-02			
Identifier	Background Screening [1]		FDEPG		FEDMCL		RBC [2] for Tap Water		51G00101		51G00201		51G00201D	
Sampling Date									7-Aug-96		7-Aug-96		7-Aug-96	
Semivolatile Organics, ug/L														
Di-n-butylphthalate			700 [4]		ND		ND		2	J	4	J	4	J
Inorganics, ug/L														
Aluminum	4,067		200 [3]		ND		37,000	n	458	J	227	J	224	J
Barium	31.4		2,000 [5]		2,000		2,600	n	57.4	J	42.1	J	39.8	J
Calcium	36,830		ND		ND		1,000,000		11000		10200		10000	
Magnesium	4,560		ND		ND		118,807		1590	B	831	B	787	B
Manganese	17		50 [3]		ND		180	n	12.9	B	14.5	B	14.1	B
Nickel			100 [5]		100		730	n	6.7	B	7.4	B		
Potassium	5,400		ND		ND		297,016		2010	B	4950	B	4470	B
Selenium	9.7		50 [5]		ND		180	n	5.3				1.6	B
Sodium	18,222		160,000 [5]		ND		396,022		18200		40100		39200	
Vanadium	20.6		49 [4]		ND		260	n	4.3	B	5.3	B	4.2	B

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Attachment B

B-3. Summary of Positive Detections in Groundwater Analytical Results, Study Area 51

Naval Training Center, Orlando
Orlando, FL

NOTES:

[1] Groundwater background screening value is twice the average of detected concentrations for inorganic analytes.
[2] RBC = Risk-Based Concentration Table, USEPA Region III, May 1996, R.L. Smith. RBC for lead is not available, value is treatment technology action limit for lead in drinking water distribution system identified in Drinking Water Standards and Health Advisories (USEPA, 1995). For essential nutrients (calcium, magnesium, and sodium) screening values were derived based on recommended daily allowances (RDAs).
[3] Secondary Standard.
[4] Systemic Toxicant
[5] Primary Standard
[6] Organoleptic
n = noncarcinogenic pathway
c = carcinogenic pathway
ND = Not determined.
ID = identifier
USEPA = U.S. Environmental Protection Agency.
FDEPG = Florida Department of Environmental Protection, Groundwater Guidance Concentrations, June 1994.
FEDMCL= Federal Maximum Contaminant Levels, Primary Drinking Water Regulations and Health Advisories, February 1996.
B = Reported concentration is between the instrument detection limit (IDL) and the contract required detection limit (CRDL).
J = Reported concentration is an estimated quantity.
ug/l = micrograms per liter.
Blank space indicates analyte/compound was not detected at the reporting limit.

ATTACHMENT C

SUMMARY OF ANALYTICAL RESULTS

ATTACHMENT C-1

SUMMARY OF SURFACE SOIL ANALYTICAL RESULTS

Attachment C

C-1. Summary of Surface Soil Analytical Results
Study Area 51

Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	51S00101		51S00201	
Lab ID	MB555003		MB555001	
Sampling Date	7-Aug-96		7-Aug-96	
Semivolatile organics, ug/kg				
1,2,4-Trichlorobenzene	390	U	370	U
1,2-Dichlorobenzene	390	U	370	U
1,3-Dichlorobenzene	390	U	370	U
1,4-Dichlorobenzene	390	U	370	U
2,2'-oxybis(1-Chloropropane)	390	U	370	U
2,4,5-Trichlorophenol	980	U	920	U
2,4,6-Trichlorophenol	390	U	370	U
2,4-Dichlorophenol	390	U	370	U
2,4-Dimethylphenol	390	U	370	U
2,4-Dinitrophenol	980	U	920	U
2,4-Dinitrotoluene	390	U	370	U
2,6-Dinitrotoluene	390	U	370	U
2-Chloronaphthalene	390	U	370	U
2-Chlorophenol	390	U	370	U
2-Methylnaphthalene	390	U	370	U
2-Methylphenol	390	U	370	U
2-Nitroaniline	980	U	920	U
2-Nitrophenol	390	U	370	U
3,3'-Dichlorobenzidine	390	U	370	U
3-Nitroaniline	980	U	920	U
4,6-Dinitro-2-methylphenol	980	U	920	U
4-Bromophenyl-phenylether	390	U	370	U
4-Chloro-3-methylphenol	390	U	370	U
4-Chloroaniline	390	U	370	U
4-Chlorophenyl-phenylether	390	U	370	U
4-Methylphenol	390	U	370	U
4-Nitroaniline	980	U	920	U
4-Nitrophenol	980	U	920	U
Acenaphthene	390	U	370	U
Acenaphthylene	390	U	370	U
Anthracene	390	U	370	U
Benzo(a)anthracene	390	U	370	U
Benzo(a)pyrene	390	U	370	U
Benzo(b)fluoranthene	390	U	370	U
Benzo(g,h,i)perylene	390	U	370	U
Benzo(k)fluoranthene	390	U	370	U
bis(2-Chloroethoxy)methane	390	U	370	U
bis(2-Chloroethyl)ether	390	U	370	U
bis(2-Ethylhexyl)phthalate	450		370	U
Butylbenzylphthalate	390	U	370	U
Carbazole	390	U	370	U
Chrysene	390	U	370	U
Di-n-butylphthalate	390	U	370	U
Di-n-octylphthalate	390	U	370	U
Dibenz(a,h)anthracene	390	U	370	U
Dibenzofuran	390	U	370	U
Diethylphthalate	390	U	370	U
Dimethylphthalate	390	U	370	U
Fluoranthene	390	U	370	U

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Attachment C

C-1. Summary of Surface Soil Analytical Results
Study Area 51

Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	51S00101		51S00201	
Lab ID	MB555003		MB555001	
Sampling Date	7-Aug-96		7-Aug-96	
Fluorene	390	U	370	U
Hexachlorobenzene	390	U	370	U
Hexachlorobutadiene	390	U	370	U
Hexachlorocyclopentadiene	390	U	370	U
Hexachloroethane	390	U	370	U
Indeno(1,2,3-cd)pyrene	390	U	370	U
Isophorone	390	U	370	U
N-Nitroso-di-n-propylamine	390	U	370	U
N-Nitrosodiphenylamine	390	U	370	U
Naphthalene	390	U	370	U
Nitrobenzene	390	U	370	U
Pentachlorophenol	980	U	920	U
Phenanthrene	390	U	370	U
Phenol	390	U	370	U
Pyrene	390	U	370	U
Polychlorinated biphenyls, ug/kg				
Aroclor-1016	39	U	36	U
Aroclor-1221	80	U	74	U
Aroclor-1232	39	U	36	U
Aroclor-1242	39	U	36	U
Aroclor-1248	39	U	36	U
Aroclor-1254	39	U	36	U
Aroclor-1260	39	U	36	U
Inorganics, mg/kg				
Aluminum	1770	J	1620	J
Antimony	3.5	U	3.3	U
Arsenic	0.22	U	0.31	B
Barium	2.8	U	3.6	U
Beryllium	0.03	B	0.06	B
Cadmium	0.78	U	0.73	U
Calcium	444	J	1850	J
Chromium	2.3	B	2.1	B
Cobalt	0.59	U	0.55	U
Copper	3.1	B	2.7	B
Iron	182		436	
Lead	3.5		4.1	
Magnesium	29.4	J	87.7	J
Manganese	2.4	J	4.6	J
Mercury	0.03	U	0.03	U
Nickel	1.5	B	1.2	U
Potassium	176	U	164	U
Selenium	0.3	U	0.28	U
Silver	0.52	U	0.49	U
Sodium	20.1	U	48.8	B
Thallium	0.19	U	0.17	U
Vanadium	0.58	B	0.64	B
Zinc	14.1	J	31.5	J

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ATTACHMENT C-2

SUMMARY OF SUBSURFACE SOIL ANALYTICAL RESULTS

Attachment C

C-2. Summary of Subsurface Soil Analytical Results
Study Area 51

Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	51B00101		51B00101D		51B00201	
Lab ID	MB555004		MB555005		MB555002	
Sampling Date	7-Aug-96		7-Aug-96		7-Aug-96	
Semivolatile organics, ug/kg						
1,2,4-Trichlorobenzene	390	U	390	U	390	U
1,2-Dichlorobenzene	390	U	390	U	390	U
1,3-Dichlorobenzene	390	U	390	U	390	U
1,4-Dichlorobenzene	390	U	390	U	390	U
2,2'-oxybis(1-Chloropropane)	390	U	390	U	390	U
2,4,5-Trichlorophenol	980	U	970	U	970	U
2,4,6-Trichlorophenol	390	U	390	U	390	U
2,4-Dichlorophenol	390	U	390	U	390	U
2,4-Dimethylphenol	390	U	390	U	390	U
2,4-Dinitrophenol	980	U	970	U	970	U
2,4-Dinitrotoluene	390	U	390	U	390	U
2,6-Dinitrotoluene	390	U	390	U	390	U
2-Chloronaphthalene	390	U	390	U	390	U
2-Chlorophenol	390	U	390	U	390	U
2-Methylnaphthalene	390	U	390	U	390	U
2-Methylphenol	390	U	390	U	390	U
2-Nitroaniline	980	U	970	U	970	U
2-Nitrophenol	390	U	390	U	390	U
3,3'-Dichlorobenzidine	390	U	390	U	390	U
3-Nitroaniline	980	U	970	U	970	U
4,6-Dinitro-2-methylphenol	980	U	970	U	970	U
4-Bromophenyl-phenylether	390	U	390	U	390	U
4-Chloro-3-methylphenol	390	U	390	U	390	U
4-Chloroaniline	390	U	390	U	390	U
4-Chlorophenyl-phenylether	390	U	390	U	390	U
4-Methylphenol	390	U	390	U	390	U
4-Nitroaniline	980	U	970	U	970	U
4-Nitrophenol	980	U	970	U	970	U
Acenaphthene	390	U	390	U	390	U
Acenaphthylene	390	U	390	U	390	U
Anthracene	390	U	390	U	390	U
Benzo(a)anthracene	390	U	390	U	390	U
Benzo(a)pyrene	390	U	390	U	390	U
Benzo(b)fluoranthene	390	U	390	U	390	U
Benzo(g,h,i)perylene	390	U	390	U	390	U
Benzo(k)fluoranthene	390	U	390	U	390	U
bis(2-Chloroethoxy)methane	390	U	390	U	390	U
bis(2-Chloroethyl)ether	390	U	390	U	390	U
bis(2-Ethylhexyl)phthalate	130	J	110	J	390	U
Butylbenzylphthalate	390	U	390	U	390	U
Carbazole	390	U	390	U	390	U
Chrysene	390	U	390	U	390	U
Di-n-butylphthalate	390	U	390	U	390	U
Di-n-octylphthalate	390	U	390	U	390	U
Dibenz(a,h)anthracene	390	U	390	U	390	U
Dibenzofuran	390	U	390	U	390	U
Diethylphthalate	390	U	390	U	390	U
Dimethylphthalate	390	U	390	U	390	U
Fluoranthene	390	U	390	U	390	U

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Attachment C

C-2. Summary of Subsurface Soil Analytical Results
Study Area 51

Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	51B00101		51B00101D		51B00201	
Lab ID	MB555004		MB555005		MB555002	
Sampling Date	7-Aug-96		7-Aug-96		7-Aug-96	
Fluorene	390	U	390	U	390	U
Hexachlorobenzene	390	U	390	U	390	U
Hexachlorobutadiene	390	U	390	U	390	U
Hexachlorocyclopentadiene	390	U	390	U	390	U
Hexachloroethane	390	U	390	U	390	U
Indeno(1,2,3-cd)pyrene	390	U	390	U	390	U
Isophorone	390	U	390	U	390	U
N-Nitroso-di-n-propylamine	390	U	390	U	390	U
N-Nitrosodiphenylamine	390	U	390	U	390	U
Naphthalene	390	U	390	U	390	U
Nitrobenzene	390	U	390	U	390	U
Pentachlorophenol	980	U	970	U	970	U
Phenanthrene	390	U	390	U	390	U
Phenol	390	U	390	U	390	U
Pyrene	390	U	390	U	390	U
Polychlorinated biphenyls, ug/kg						
Aroclor-1016	39	U	38	U	38	U
Aroclor-1221	79	U	78	U	78	U
Aroclor-1232	39	U	38	U	38	U
Aroclor-1242	39	U	38	U	38	U
Aroclor-1248	39	U	38	U	38	U
Aroclor-1254	39	U	38	U	38	U
Aroclor-1260	39	U	38	U	38	U
Inorganics, mg/kg						
Aluminum	8250	J	7780	J	3970	J
Antimony	3.5	U	3.5	U	3.5	U
Arsenic	0.22	U	0.22	U	0.23	J
Barium	10	B	11.4	B	10.4	B
Beryllium	0.11	B	0.13	B	0.03	B
Cadmium	0.78	U	0.77	U	0.77	U
Calcium	96.3	J	104	J	181	J
Chromium	10.6		9.8		5.1	
Cobalt	0.59	U	0.58	U	0.58	U
Copper	1.4	B	1.3	B	2	B
Iron	255		264		164	
Lead	13		13.8		9.7	
Magnesium	24	J	23.9	J	41.9	J
Manganese	0.57	J	1.2	J	0.91	J
Mercury	0.06	B	0.06	B	0.03	U
Nickel	3.8	B	1.8	B	2	B
Potassium	175	U	174	U	173	U
Selenium	0.29	U	0.29	U	0.29	U
Silver	0.52	U	0.51	U	0.51	U
Sodium	23.7	B	20.8	U	36.9	B
Thallium	0.19	U	0.18	U	0.18	U
Vanadium	1.3	B	1.9	B	1.4	B
Zinc	4	J	5.7	J	4	J

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ATTACHMENT C-3

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Attachment C

C-3. Summary of Groundwater Analytical Results
Study Area 51

Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	51G00101		51G00201		51G00201D	
Lab ID	MB554001		MB554002		MB554003	
Sampling Date	7-Aug-96		7-Aug-96		7-Aug-96	
Semivolatile organics, ug/L						
1,2,4-Trichlorobenzene	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)	10	U	10	U	10	U
2,4,5-Trichlorophenol	25	U	25	U	25	U
2,4,6-Trichlorophenol	10	U	10	U	10	U
2,4-Dichlorophenol	10	U	10	U	10	U
2,4-Dimethylphenol	10	U	10	U	10	U
2,4-Dinitrophenol	25	U	25	U	25	U
2,4-Dinitrotoluene	10	U	10	U	10	U
2,6-Dinitrotoluene	10	U	10	U	10	U
2-Chloronaphthalene	10	U	10	U	10	U
2-Chlorophenol	10	U	10	U	10	U
2-Methylnaphthalene	10	U	10	U	10	U
2-Methylphenol	10	U	10	U	10	U
2-Nitroaniline	25	U	25	U	25	U
2-Nitrophenol	10	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U	10	U	10	U
3-Nitroaniline	25	U	25	U	25	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U
4-Bromophenyl-phenylether	10	U	10	U	10	U
4-Chloro-3-methylphenol	10	U	10	U	10	U
4-Chloroaniline	10	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	10	U	10	U
4-Methylphenol	10	U	10	U	10	U
4-Nitroaniline	25	U	25	U	25	U
4-Nitrophenol	25	U	25	U	25	U
Acenaphthene	10	U	10	U	10	U
Acenaphthylene	10	U	10	U	10	U
Anthracene	10	U	10	U	10	U
Benzo(a)anthracene	10	U	10	U	10	U
Benzo(a)pyrene	10	U	10	U	10	U
Benzo(b)fluoranthene	10	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	10	U	10	U
Benzo(k)fluoranthene	10	U	10	U	10	U
bis(2-Chloroethoxy)methane	10	U	10	U	10	U
bis(2-Chloroethyl)ether	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U
Butylbenzylphthalate	10	U	10	U	10	U
Carbazole	10	U	10	U	10	U
Chrysene	10	U	10	U	10	U
Di-n-butylphthalate	2	J	4	J	4	J
Di-n-octylphthalate	10	U	10	U	10	U
Dibenz(a,h)anthracene	10	U	10	U	10	U
Dibenzofuran	10	U	10	U	10	U
Diethylphthalate	10	U	10	U	10	U
Dimethylphthalate	10	U	10	U	10	U
Fluoranthene	10	U	10	U	10	U

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Attachment C

C-3. Summary of Groundwater Analytical Results
Study Area 51

Site Screening Report
Naval Training Center, Orlando
Orlando, FL

Sample ID	51G00101		51G00201		51G00201D	
Lab ID	MB554001		MB554002		MB554003	
Sampling Date	7-Aug-96		7-Aug-96		7-Aug-96	
Fluorene	10	U	10	U	10	U
Hexachlorobenzene	10	U	10	U	10	U
Hexachlorobutadiene	10	U	10	U	10	U
Hexachlorocyclopentadiene	10	U	10	U	10	U
Hexachloroethane	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U
Isophorone	10	U	10	U	10	U
N-Nitroso-di-n-propylamine	10	U	10	U	10	U
N-Nitrosodiphenylamine	10	U	10	U	10	U
Naphthalene	10	U	10	U	10	U
Nitrobenzene	10	U	10	U	10	U
Pentachlorophenol	25	U	25	U	25	U
Phenanthrene	10	U	10	U	10	U
Phenol	10	U	10	U	10	U
Pyrene	10	U	10	U	10	U
Pesticides/PCBs, ug/L						
Aroclor-1016	0.5	U	0.5	UJ	0.5	UJ
Aroclor-1221	1	U	1	UJ	1	UJ
Aroclor-1232	0.5	U	0.5	UJ	0.5	UJ
Aroclor-1242	0.5	U	0.5	UJ	0.5	UJ
Aroclor-1248	0.5	U	0.5	UJ	0.5	UJ
Aroclor-1254	0.5	U	0.5	UJ	0.5	UJ
Aroclor-1260	0.5	U	0.5	UJ	0.5	UJ
Inorganics, ug/L						
Aluminum	458	J	227	J	224	J
Antimony	15	U	15	U	15	U
Arsenic	0.95	U	0.95	U	0.95	U
Barium	57.4	J	42.1	J	39.8	J
Beryllium	0.13	U	0.13	U	0.13	U
Cadmium	3.3	U	3.3	U	3.3	U
Calcium	11000		10200		10000	
Chromium	2.2	U	2.2	U	2.2	U
Cobalt	2.5	U	2.5	U	2.5	U
Copper	3.1	U	3.8	U	1.2	U
Iron	59	U	44.6	U	42.1	U
Lead	1.7	U	1.4	U	0.88	U
Magnesium	1590	B	831	B	787	B
Manganese	12.9	B	14.5	B	14.1	B
Mercury	0.05	U	0.05	U	0.05	U
Nickel	6.7	B	7.4	B	5.5	U
Potassium	2010	B	4950	B	4470	B
Selenium	5.3		1.2	U	1.6	B
Silver	2.2	U	2.2	U	2.2	U
Sodium	18200		40100		39200	
Thallium	0.79	UJ	0.79	UJ	0.79	UJ
Vanadium	4.3	B	5.3	B	4.2	B
Zinc	11	U	6.7	U	8	U
General Chemistry, mg/L						
Total Suspended Solids	4	U	4	U	4	U

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NOTES TO SUMMARY TABLES OF ANALYTICAL RESULTS

Naval Training Center
Orlando, FL

NA = Identified parameter not analyzed.
Sample ID = Sample Identifier
Lab ID = Laboratory identifier

Units:

mg/kg milligram per kilogram
ug/kg microgram per kilogram
mg/L milligram per liter

The following standard validation qualifiers shown next to the number are used in this Attachment.

U The analyte/compound was analyzed for but was not detected above the reported sample quantitation limit
J The analyte/compound was positively identified and the associated numerical value is an estimated concentration of the analyte/compound in the sample.
N The analysis indicates the presence of a compound for which there is presumptive evidence to make a tentative identification.
JN The analysis indicates the presence of a compound that has been tentatively identified, and the associated numerical value represents an estimated concentration.
UJ The analyte/compound was not detected above the reported sample quantitation limit.
The reported quantitation limit, however, is approximate and may or may not represent the actual limit of quantitation necessary to accurately measure the analyte/compound in the sample.
R The sample results are rejected because of serious deficiencies in meeting quality control criteria.

The following laboratory qualifiers are typically dropped upon validation but are retained here to provide additional information on their associated numerical values.

B The inorganic analyte was positively identified and the associated numerical value is an estimated concentration because the detection was below the contract required detection limit (CRDL) and above the instrument detection
E The reported value for the compound exceeds the linear calibration range for that compound. Therefore, the sample have been reanalyzed at an appropriate dilution (sample identifiers ending in DL).
D The reported value for the compound has been quantified at a secondary dilution factor. This value typically is used in favor of E qualified values. When this applies, the E qualifier are flagged ER;
D qualified values that are rejected in favor of the original results are flagged DR.